



Amndt C

SEQUENCE LISTING

<110> Fisher, Paul B.
Kang, Dong-Chul
Gopalkrishnan, Rahul V.

<120> MELANOMA DIFFERENTIATION ASSOCIATED
GENE-5 AND PROMOTER AND USES THEREOF

<130> A34614 (070050.1690)

<140> 09/515,363

<141> 2000-02-29

<160> 25

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 3365

<212> DNA

<213> homo sapiens

<400> 1

C2

| | | | | | | |
|-------------|------------|------------|------------|-------------|------------|------|
| gcgcgcgcgc | ctgagagccc | tgtggacaac | ctcgtcattg | tcaggcacag | agcggtagac | 60 |
| cctgcttctc | taagtgggca | gcggacagcg | gcacgcacat | ttcacctgtc | ccgcagacaa | 120 |
| cagcaccatc | tgcttgggag | aaccctctcc | cttctctgag | aaagaaagat | gtcgaatggg | 180 |
| tattccacag | acgagaattt | ccgctatctc | atctcgtgct | tcagggccag | ggtgaaaatg | 240 |
| tacatccagg | tggagcctgt | gctggactac | ctgaccttcc | tgccctgcaga | ggtgaaggag | 300 |
| cagattcaga | ggacagtccg | cacctccggg | aacatgcagg | cagttgaact | gctgctgagc | 360 |
| accttgagga | agggagtctg | gcaccttggg | tggactcggg | aattcgtgga | ggccctccgg | 420 |
| agaaccggca | gccctctggc | cgcccgtcac | atgaacctcg | agctcacgga | cttgccctct | 480 |
| ccatcgtttg | agaacgctca | tgatgaatat | ctccaactgc | tgaacctcct | tcagccact | 540 |
| ctgggtggaca | agcttctagt | tagagacgtc | ttggataagt | gcatggagga | ggaactgttg | 600 |
| acaattgaag | acagaaaccg | gattgctgct | gcagaaaaca | atggaaatga | atcaggtgta | 660 |
| agagagctac | taaaaaggat | tgtgcagaaa | gaaaactggg | tctctgcatt | tctgaatgtt | 720 |
| cttcgtcaaa | caggaaacaa | tgaacttgct | caagagttaa | caggctctga | ttgctcagaa | 780 |
| agcaatgcag | agattgagaa | tttatcacia | gttgatgggc | ctcaagtgga | agagcaactt | 840 |
| ctttcaacca | cagttcagcc | aaatctggag | aaggaggtct | ggggcatgga | gaataactca | 900 |
| tcagaatcat | cttttgagca | ttcttctgta | gtttcagaat | cagacacaag | tttggcagaa | 960 |
| ggaagtgtca | gctgcttaga | tgaaagtctt | ggacataaca | gcaacatggg | cagtgattca | 1020 |
| ggcaccatgg | gaagtgatcc | agatgaagag | aatgtggcag | caagagcatc | cccggagcca | 1080 |
| gaactccagc | tcaggcctta | ccaaatggaa | gttgcccagc | cagccttgga | agggaagaat | 1140 |
| atcatcatct | gcctccctac | agggagtgga | aaaaccagag | tggtctgtta | cattgccaag | 1200 |
| gatcacttag | acaagaagaa | aaaagcatct | gagcctggaa | aagttatagt | tcttgtcaat | 1260 |
| aaggtactgc | tagttgaaca | gctcttccgc | aaggagtccc | aaccattttt | gaagaaatgg | 1320 |
| tatcgtgtta | ttggattaag | tggtgatacc | caactgaaaa | tatcatttcc | agaagttgtc | 1380 |
| aagtccgtgtg | atattattat | cagtacagct | caaatccttg | aaaactccct | cttaaacttg | 1440 |
| gaaaatggag | aagatgctgg | tgttcaattg | tcagactttt | ccctcattat | cattgatgaa | 1500 |
| tgtcatcaca | ccaacaaaga | agcagtgtat | aataacatca | tgaggcatta | tttgatgcag | 1560 |
| aagttgaaaa | acaatagact | caagaaagaa | aacaaaccag | tgattccctt | tcctcagata | 1620 |
| ctgggactaa | cagcttcacc | tggtgttgga | ggggccacga | agcaagccaa | agctgaagaa | 1680 |
| cacattttta | aactatgtgc | caatcttgat | gcatttacta | ttaaaactgt | taaagaaaac | 1740 |
| cttgatcaac | tgaaaaacca | aatacaggag | ccatgcaaga | agtttgccat | tgcatatgca | 1800 |

```

accagagaag atccatttaa agagaaactt ctagaaataa tgacaaggat tcaaacttat 1860
tgtcaaatga gtccaatgtc agatttttga actcaaccct atgaacaatg ggccattcaa 1920
atggaaaaaa aagctgcaaa aaaaggaaat cgcaaagaac gtgtttgtgc agaacatttg 1980
aggaagtaca atgaggccct acaaattaat gacacaattc gaatgataga tgcgtatact 2040
catcttgaaa ctttctataa tgaagagaaa gataagaagt ttgcagtcac agaagatgat 2100
agtgatgagg gtggtgatga tgagtattgt gatggtgatg aagatgagga tgatttaaag 2160
aaacctttga aactggatga aacagataga tttctcatga ctttattttt tgaaaacaat 2220
aaaatgttga aaaggctggc tgaaaaccca gaatatgaaa atgaaaagct gaccaaatta 2280
agaaatacca taatggagca atatactagg actgaggaat cagcacgagg aataatcttt 2340
acaaaaacac gacagagtgc atatgcgctt tcccagtggg ttactgaaaa tgaaaaattt 2400
gctgaagtag gagtcaaagc ccaccatctg attggagctg gacacagcag tgagttcaaa 2460
cccatgacac agaatgaaca aaaagaagtc attagtaaat ttcgcactgg aaaaatcaat 2520
ctgcttatcg ctaccacagt ggcagaagaa ggtctggata ttaaagaatg taacattggt 2580
atccgttatg gtctcgtcac caatgaaata gccatgggtc aggcccgagg tcgagccaga 2640
gctgatgaga gcacctacgt cctggttgct cacagtgggt caggagtatt cgaacatgag 2700
acagttaatg atttccgaga gaagatgatg tataaagcta tacatttgtg tcaaaatatg 2760
aaaccagagg agtatgctca taagattttg gaattacaga tgcaaagtat aatggaaaag 2820
aaaatgaaaa ccaagagaaa tattgccaa gattacaaga ataaccctac actaataact 2880
ttcctttgca aaaactgcag tgtgctagcc tgttctgggg aagatatcca tgtaattgag 2940
aaaatgcac acgtcaatat gacccagaaa ttcaaggaac tttacattgt aagagaaaac 3000
aaagcactgc aaaagaagtg tgccgactat caaataaatg gtgaaatcat ctgcaaattg 3060
ggccaggctt ggggaacaat gatggtgcac aaaggcttag atttgccttg tctcaaaata 3120
aggaattttg tagtggtttt caaaaataat tcaacaaaga aacaatacaa aaagtgggta 3180
gaattaccta tcacatttcc caatcttgac tattcagaat gctgtttatt tagtgatgag 3240
gattagcact tgattgaaga ttcttttaaa atactatcag ttaaacattt aatatgatta 3300
tgattaatgt attcattatg ctacagaact gacataagaa tcaataaaat gattgtttta 3360
ctctg

```

<210> 2

<211> 1025

<212> PRT

<213> homo sapiens

<400> 2

```

Met Ser Asn Gly Tyr Ser Thr Asp Glu Asn Phe Arg Tyr Leu Ile Ser
 1           5           10           15
Cys Phe Arg Ala Arg Val Lys Met Tyr Ile Gln Val Glu Pro Val Leu
      20           25           30
Asp Tyr Leu Thr Phe Leu Pro Ala Glu Val Lys Glu Gln Ile Gln Arg
      35           40           45
Thr Val Ala Thr Ser Gly Asn Met Gln Ala Val Glu Leu Leu Leu Ser
      50           55           60
Thr Leu Glu Lys Gly Val Trp His Leu Gly Trp Thr Arg Glu Phe Val
      65           70           75           80
Glu Ala Leu Arg Arg Thr Gly Ser Pro Leu Ala Ala Arg Tyr Met Asn
      85           90           95
Pro Glu Leu Thr Asp Leu Pro Ser Pro Ser Phe Glu Asn Ala His Asp
      100          105          110
Glu Tyr Leu Gln Leu Leu Asn Leu Leu Gln Pro Thr Leu Val Asp Lys
      115          120          125
Leu Leu Val Arg Asp Val Leu Asp Lys Cys Met Glu Glu Glu Leu Leu
      130          135          140
Thr Ile Glu Asp Arg Asn Arg Ile Ala Ala Ala Glu Asn Asn Gly Asn
      145          150          155          160
Glu Ser Gly Val Arg Glu Leu Leu Lys Arg Ile Val Gln Lys Glu Asn
      165          170          175
Trp Phe Ser Ala Phe Leu Asn Val Leu Arg Gln Thr Gly Asn Asn Glu

```

| | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|
| | | | 180 | | | | | | 185 | | | | | | 190 | | | | | |
| Leu | Val | Gln | Glu | Leu | Thr | Gly | Ser | Asp | Cys | Ser | Glu | Ser | Asn | Ala | Glu | | | | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | | | | |
| Ile | Glu | Asn | Leu | Ser | Gln | Val | Asp | Gly | Pro | Gln | Val | Glu | Glu | Gln | Leu | | | | | |
| | | 210 | | | | 215 | | | | | 220 | | | | | | | | | |
| Leu | Ser | Thr | Thr | Val | Gln | Pro | Asn | Leu | Glu | Lys | Glu | Val | Trp | Gly | Met | | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | | | | |
| Glu | Asn | Asn | Ser | Ser | Glu | Ser | Ser | Phe | Ala | Asp | Ser | Ser | Val | Val | Ser | | | | | |
| | | | | 245 | | | | 250 | | | | | | 255 | | | | | | |
| Glu | Ser | Asp | Thr | Ser | Leu | Ala | Glu | Gly | Ser | Val | Ser | Cys | Leu | Asp | Glu | | | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | | | |
| Ser | Leu | Gly | His | Asn | Ser | Asn | Met | Gly | Ser | Asp | Ser | Gly | Thr | Met | Gly | | | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | | | | |
| Ser | Asp | Ser | Asp | Glu | Glu | Asn | Val | Ala | Ala | Arg | Ala | Ser | Pro | Glu | Pro | | | | | |
| | | 290 | | | | 295 | | | | | 300 | | | | | | | | | |
| Glu | Leu | Gln | Leu | Arg | Pro | Tyr | Gln | Met | Glu | Val | Ala | Gln | Pro | Ala | Leu | | | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | | | | |
| Glu | Gly | Lys | Asn | Ile | Ile | Ile | Cys | Leu | Pro | Thr | Gly | Ser | Gly | Lys | Thr | | | | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | | | | |
| Arg | Val | Ala | Val | Tyr | Ile | Ala | Lys | Asp | His | Leu | Asp | Lys | Lys | Lys | Lys | | | | | |
| | | | 340 | | | | 345 | | | | | | 350 | | | | | | | |
| Ala | Ser | Glu | Pro | Gly | Lys | Val | Ile | Val | Leu | Val | Asn | Lys | Val | Leu | Leu | | | | | |
| | | 355 | | | | | 360 | | | | 365 | | | | | | | | | |
| Val | Glu | Gln | Leu | Phe | Arg | Lys | Glu | Phe | Gln | Pro | Phe | Leu | Lys | Lys | Trp | | | | | |
| | | 370 | | | | 375 | | | | | 380 | | | | | | | | | |
| Tyr | Arg | Val | Ile | Gly | Leu | Ser | Gly | Asp | Thr | Gln | Leu | Lys | Ile | Ser | Phe | | | | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | | | | |
| Pro | Glu | Val | Val | Lys | Ser | Cys | Asp | Ile | Ile | Ser | Thr | Ala | Gln | Ile | | | | | | |
| | | | | 405 | | | | | 410 | | | | 415 | | | | | | | |
| Leu | Glu | Asn | Ser | Leu | Leu | Asn | Leu | Glu | Asn | Gly | Glu | Asp | Ala | Gly | Val | | | | | |
| | | | 420 | | | | | 425 | | | | 430 | | | | | | | | |
| Gln | Leu | Ser | Asp | Phe | Ser | Leu | Ile | Ile | Ile | Asp | Glu | Cys | His | His | Thr | | | | | |
| | | 435 | | | | | 440 | | | | 445 | | | | | | | | | |
| Asn | Lys | Glu | Ala | Val | Tyr | Asn | Asn | Ile | Met | Arg | His | Tyr | Leu | Met | Gln | | | | | |
| | | 450 | | | | 455 | | | | | 460 | | | | | | | | | |
| Lys | Leu | Lys | Asn | Asn | Arg | Leu | Lys | Lys | Glu | Asn | Lys | Pro | Val | Ile | Pro | | | | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | | | | |
| Leu | Pro | Gln | Ile | Leu | Gly | Leu | Thr | Ala | Ser | Pro | Gly | Val | Gly | Gly | Ala | | | | | |
| | | | | 485 | | | | 490 | | | | | | 495 | | | | | | |
| Thr | Lys | Gln | Ala | Lys | Ala | Glu | Glu | His | Ile | Leu | Lys | Leu | Cys | Ala | Asn | | | | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | | | | |
| Leu | Asp | Ala | Phe | Thr | Ile | Lys | Thr | Val | Lys | Glu | Asn | Leu | Asp | Gln | Leu | | | | | |
| | | 515 | | | | | 520 | | | | 525 | | | | | | | | | |
| Lys | Asn | Gln | Ile | Gln | Glu | Pro | Cys | Lys | Lys | Phe | Ala | Ile | Ala | Asp | Ala | | | | | |
| | | 530 | | | | 535 | | | </ | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|-----|------|-----|-----|-----|--|
| Ile | Glu | Asp | Asp | Ser | Asp | Glu | Gly | Gly | Asp | Asp | Glu | Tyr | Cys | Asp | Gly | |
| | | | | 645 | | | | | 650 | | | | | 655 | | |
| Asp | Glu | Asp | Glu | Asp | Asp | Leu | Lys | Lys | Pro | Leu | Lys | Leu | Asp | Glu | Thr | |
| | | | 660 | | | | | 665 | | | | | 670 | | | |
| Asp | Arg | Phe | Leu | Met | Thr | Leu | Phe | Phe | Glu | Asn | Asn | Lys | Met | Leu | Lys | |
| | | | 675 | | | | 680 | | | | | 685 | | | | |
| Arg | Leu | Ala | Glu | Asn | Pro | Glu | Tyr | Glu | Asn | Glu | Lys | Leu | Thr | Lys | Leu | |
| | | | 690 | | | 695 | | | | | 700 | | | | | |
| Arg | Asn | Thr | Ile | Met | Glu | Gln | Tyr | Thr | Arg | Thr | Glu | Glu | Ser | Ala | Arg | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | |
| Gly | Ile | Ile | Phe | Thr | Lys | Thr | Arg | Gln | Ser | Ala | Tyr | Ala | Leu | Ser | Gln | |
| | | | 725 | | | | | 730 | | | | | 735 | | | |
| Trp | Ile | Thr | Glu | Asn | Glu | Lys | Phe | Ala | Glu | Val | Gly | Val | Lys | Ala | His | |
| | | | 740 | | | | 745 | | | | | 750 | | | | |
| His | Leu | Ile | Gly | Ala | Gly | His | Ser | Ser | Glu | Phe | Lys | Pro | Met | Thr | Gln | |
| | | | 755 | | | 760 | | | | | 765 | | | | | |
| Asn | Glu | Gln | Lys | Glu | Val | Ile | Ser | Lys | Phe | Arg | Thr | Gly | Lys | Ile | Asn | |
| | | | 770 | | | 775 | | | | | 780 | | | | | |
| Leu | Leu | Ile | Ala | Thr | Thr | Val | Ala | Glu | Glu | Gly | Leu | Asp | Ile | Lys | Glu | |
| 785 | | | | | 790 | | | | 795 | | | | | | 800 | |
| Cys | Asn | Ile | Val | Ile | Arg | Tyr | Gly | Leu | Val | Thr | Asn | Glu | Ile | Ala | Met | |
| | | | 805 | | | | 810 | | | | | | 815 | | | |
| Val | Gln | Ala | Arg | Gly | Arg | Ala | Arg | Ala | Asp | Glu | Ser | Thr | Tyr | Val | Leu | |
| | | | 820 | | | 825 | | | | | | 830 | | | | |
| Val | Ala | His | Ser | Gly | Ser | Gly | Val | Ile | Glu | His | Glu | Thr | Val | Asn | Asp | |
| | | | 835 | | | 840 | | | | | 845 | | | | | |
| Phe | Arg | Glu | Lys | Met | Met | Tyr | Lys | Ala | Ile | His | Cys | Val | Gln | Asn | Met | |
| | | | 850 | | | 855 | | | | | 860 | | | | | |
| Lys | Pro | Glu | Glu | Tyr | Ala | His | Lys | Ile | Leu | Glu | Leu | Gln | Met | Gln | Ser | |
| 865 | | | | | 870 | | | | 875 | | | | | | 880 | |
| Ile | Met | Glu | Lys | Lys | Met | Lys | Thr | Lys | Arg | Asn | Ile | Ala | Lys | His | Tyr | |
| | | | 885 | | | | | 890 | | | | | | 895 | | |
| Lys | Asn | Asn | Pro | Ser | Leu | Ile | Thr | Phe | Leu | Cys | Lys | Asn | Cys | Ser | Val | |
| | | | 900 | | | | | 905 | | | | | 910 | | | |
| Leu | Ala | Cys | Ser | Gly | Glu | Asp | Ile | His | Val | Ile | Glu | Lys | Met | His | His | |
| | | | 915 | | | 920 | | | | | | 925 | | | | |
| Val | Asn | Met | Thr | Pro | Glu | Phe | Lys | Glu | Leu | Tyr | Ile | Val | Arg | Glu | Asn | |
| | | | 930 | | | 935 | | | | | 940 | | | | | |
| Lys | Ala | Leu | Gln | Lys | Lys | Cys | Ala | Asp | Tyr | Gln | Ile | Asn | Gly | Glu | Ile | |
| 945 | | | | | 950 | | | | 955 | | | | | | 960 | |
| Ile | Cys | Lys | Cys | Gly | Gln | Ala | Trp | Gly | Thr | Met | Met | Val | His | Lys | Gly | |
| | | | 965 | | | | | 970 | | | | | | 975 | | |
| Leu | Asp | Leu | Pro | Cys | Leu | Lys | Ile | Arg | Asn | Phe | Val | Val | Val | Phe | Lys | |
| | | | 980 | | | | | 985 | | | | | 990 | | | |
| Asn | Asn | Ser | Thr | Lys | Lys | Gln | Tyr | Lys | Lys | Trp | Val | Glu | Leu | Pro | Ile | |
| | | | 995 | | | 1000 | | | | | | 1005 | | | | |
| Thr | Phe | Pro | Asn | Leu | Asp | Tyr | Ser | Glu | Cys | Cys | Leu | Phe | Ser | Asp | Glu | |
| | | | 1010 | | | 1015 | | | | | | 1020 | | | | |
| Asp | | | | | | | | | | | | | | | | |
| 1025 | | | | | | | | | | | | | | | | |

<210> 3
 <211> 1036
 <212> DNA
 <213> homo sapiens

<220>
<221> misc_feature
<222> 551
<223> n = A,T,C or G

<400> 3
gcacattttg gcctacaaag gaccttattg ttaaggcaga acctgctggg aaaacaaaat 60
atccgccgga ggagctttgt agagcggttg tcttggtgtc agagagaatt cgctttcctt 120
ttctgtttcc cgcggtgtcc ttaaccaaag gcctcctctc ttcacccgcc ccgacaaaaa 180
ggtggcgtct ccttgaggaa actccctccc cgccaggcag attacgttta caaagtccctg 240
agaagagaat cgaaacagaa accaaagtca ggcaaactct gtaagaactg cctgacagaa 300
agctggactc aaagctccta cccgagtgtg cagcaggatc gcccgcgtcc gggacccccag 360
gcgcacaccg cagagtccaa agtgccgcgc ctgccggccg cacctgctg ccgcggcccc 420
gcgcgcgcgc ccgctgcccc cctgcccgcc tgcccacctg ccaggtgcg agtgcagccc 480
cgcgcccgcc ctgtgagacc ctgtggacaa cctcgctatt gtcaggcaca gagcggtaga 540
ccctgcttct ntaagtgggc agcggacagc ggcacgcaca tttcacctgt ccgcgagaca 600
acagcaccat ctgcttggga gaaccctctc ccttctctga gaaagaaaga tgtcgaatgg 660
gtattccaca gacgagaatt tccgctatct catctcgtgc ttcagggccca gggtgaaaat 720
gtacatccag gtggagcctg tgctggacta cctgaccttt ctgcctgcag aggtgaagga 780
gcagattcag aggacagtcg ccacctccgg gaacatgcag gcagttgaac tgctgctgag 840
caccttggag aagggagtct ggcaccttgg ttggactcgg gaattcgtgg aggcctcccg 900
gagaaccggc agccctctgg ccgcccgtc catgaacct gagctcacgg acttgccctc 960
tccatcgttt gagaacgctc atgatgaata tctccaactg ctgaacctcc ttcagcccac 1020
tctggtggac aagctt 1036

<210> 4
<211> 202
<212> DNA
<213> homo sapiens

<220>
<221> misc_feature
<222> 33
<223> n = A,T,C or G

<221> misc_feature
<222> 73
<223> n = A,T,C or G

<221> misc_feature
<222> 107
<223> n = A,T,C or G

<400> 4
cattgaactc tttttaagaa cacaatatat tangcattat ccatcttatt gttgggcaga 60
ggtaaggaaa atntaccaat aattttcatt agtgtggagc attatantcc tgtggaaaga 120
atgctgaagt acaaatgaga atccaaagta ccagtctcag ttctgtcact aattttcaga 180
ataaaaattag gcaaatcagt tc 202

<210> 5
<211> 112
<212> PRT
<213> homo sapiens

<400> 5
Met Ala Glu Gly Asn His Arg Lys Lys Pro Leu Lys Val Leu Glu Ser
1 5 10 15

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gly | Lys | Asp | Phe | Leu | Thr | Gly | Val | Leu | Asp | Asn | Leu | Val | Glu | Gln |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asn | Val | Leu | Asn | Trp | Lys | Glu | Glu | Glu | Lys | Lys | Lys | Tyr | Tyr | Asp | Ala |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Lys | Thr | Glu | Asp | Lys | Val | Arg | Val | Met | Ala | Asp | Ser | Met | Gln | Glu | Lys |
| | 50 | | | | 55 | | | | | | 60 | | | | |
| Gln | Arg | Met | Ala | Gly | Gln | Met | Leu | Leu | Gln | Thr | Phe | Phe | Asn | Ile | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Ile | Ser | Pro | Asn | Lys | Lys | Ala | His | Pro | Asn | Met | Glu | Ala | Gly | Pro |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Pro | Glu | Ser | Gly | Glu | Ser | Thr | Asp | Ala | Leu | Lys | Leu | Cys | Pro | His | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |

<210> 6
 <211> 118
 <212> PRT
 <213> homo sapiens

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Asp | Lys | Val | Leu | Lys | Glu | Lys | Arg | Lys | Leu | Phe | Ile | Arg | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Gly | Glu | Gly | Thr | Ile | Asn | Gly | Leu | Leu | Asp | Glu | Leu | Leu | Gln | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Arg | Val | Leu | Asn | Lys | Glu | Glu | Met | Glu | Lys | Val | Lys | Arg | Glu | Asn | Ala |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Thr | Val | Met | Asp | Lys | Thr | Arg | Ala | Leu | Ile | Asp | Ser | Val | Ile | Pro | Lys |
| | 50 | | | | 55 | | | | | | 60 | | | | |
| Gly | Ala | Gln | Ala | Cys | Gln | Ile | Cys | Ile | Thr | Tyr | Ile | Cys | Glu | Glu | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Tyr | Leu | Ala | Gly | Thr | Leu | Gly | Leu | Ser | Ala | Ala | Pro | Gln | Ala | Val |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Gln | Asp | Asn | Pro | Ala | Met | Pro | Thr | Ser | Ser | Gly | Ser | Glu | Gly | Asn | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Leu | Cys | Ser | Leu | Glu | | | | | | | | | | |
| | | | 115 | | | | | | | | | | | | |

<210> 7
 <211> 108
 <212> PRT
 <213> homo sapiens

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Asp | Asp | Leu | Ser | Leu | Ile | Arg | Lys | Asn | Arg | Met | Ala | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Phe | Gln | Gln | Leu | Thr | Cys | Val | Leu | Pro | Ile | Leu | Asp | Asn | Leu | Leu | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Asn | Val | Ile | Asn | Lys | Gln | Glu | His | Asp | Ile | Ile | Lys | Gln | Lys | Thr |
| | | 35 | | | | 40 | | | | | | 45 | | | |
| Gln | Ile | Pro | Leu | Gln | Ala | Arg | Glu | Leu | Ile | Asp | Thr | Ile | Leu | Val | Lys |
| | 50 | | | | 55 | | | | | | 60 | | | | |
| Gly | Asn | Ala | Ala | Ala | Asn | Ile | Phe | Lys | Asn | Cys | Leu | Lys | Glu | Ile | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Thr | Leu | Tyr | Lys | Asn | Leu | Phe | Val | Asp | Lys | Asn | Met | Lys | Tyr | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Pro | Thr | Glu | Asp | Val | Ser | Gly | Leu | Ser | Leu | Glu | Glu | | | | |

100

105

<210> 8
 <211> 107
 <212> PRT
 <213> homo sapiens

<400> 8
 Glu Ser Asn Asp Leu Leu Ile Arg Lys Asn Arg Met Ala Leu Phe
 1 5 10 15
 Gln His Leu Thr Cys Val Ile Pro Ile Leu Asp Ser Leu Leu Thr Ala
 20 25 30
 Gly Ile Ile Asn Glu Gln Glu His Asp Val Ile Lys Gln Lys Thr Gln
 35 40 45
 Thr Ser Leu Gln Ala Arg Glu Leu Ile Asp Thr Ile Leu Val Lys Gly
 50 55 60
 Asn Ile Ala Ala Thr Val Phe Arg Asn Ser Leu Gln Glu Ala Glu Ala
 65 70 75 80
 Val Leu Tyr Glu His Leu Phe Val Gln Gln Asp Ile Lys Tyr Ile Pro
 85 90 95
 Thr Glu Asp Val Ser Asp Leu Pro Val Glu Glu
 100 105

<210> 9
 <211> 115
 <212> PRT
 <213> homo sapiens

<400> 9
 Met His Pro His His Gln Glu Thr Leu Lys Lys Asn Arg Val Val Leu
 1 5 10 15
 Ala Lys Gln Leu Leu Leu Ser Glu Leu Leu Glu His Leu Leu Glu Lys
 20 25 30
 Asp Ile Ile Thr Leu Glu Met Arg Glu Leu Ile Gln Ala Lys Val Gly
 35 40 45
 Ser Phe Ser Gln Asn Val Glu Leu Leu Asn Leu Leu Pro Lys Arg Gly
 50 55 60
 Pro Gln Ala Phe Asp Ala Phe Cys Glu Ala Leu Arg Glu Thr Lys Gln
 65 70 75 80
 Gly His Leu Glu Asp Met Leu Leu Thr Thr Leu Ser Gly Leu Gln His
 85 90 95
 Val Leu Pro Pro Leu Ser Cys Asp Tyr Asp Leu Ser Leu Pro Phe Pro
 100 105 110
 Val Cys Glu
 115

<210> 10
 <211> 50
 <212> PRT
 <213> homo sapiens

<400> 10
 Leu Val Asp Lys Leu Leu Val Arg Asp Val Leu Asp Lys Cys Met Glu
 1 5 10 15

Glu Glu Leu Leu Thr Ile Glu Asp Arg Asn Arg Ile Ala Ala Ala Glu
 20 25 30
 Asn Asn Gly Asn Glu Ser Gly Val Arg Glu Leu Leu Lys Arg Ile Val
 35 40 45
 Gln Lys
 50

<210> 11
 <211> 109
 <212> PRT
 <213> homo sapiens

<400> 11
 Met Glu Ala Arg Asp Lys Gln Val Leu Arg Ser Leu Arg Leu Glu Leu
 1 5 10 15
 Gly Ala Glu Val Leu Val Glu Gly Leu Val Leu Gln Tyr Leu Tyr Gln
 20 25 30
 Glu Gly Ile Leu Thr Glu Asn His Ile Gln Glu Ile Asn Ala Gln Thr
 35 40 45
 Thr Gly Leu Arg Lys Thr Met Leu Leu Leu Asp Ile Leu Pro Ser Arg
 50 55 60
 Gly Pro Lys Ala Phe Asp Thr Phe Leu Asp Ser Leu Gln Glu Phe Pro
 65 70 75 80
 Trp Val Arg Glu Lys Leu Lys Lys Ala Arg Glu Glu Ala Met Thr Asp
 85 90 95
 Leu Pro Ala Gly Asp Arg Leu Thr Gly Ile Pro Ser His
 100 105

<210> 12
 <211> 406
 <212> PRT
 <213> mus musculus

<400> 12
 Met Ser Ala Ser Gln Asp Ser Arg Ser Arg Asp Asn Gly Pro Asp Gly
 1 5 10 15
 Met Glu Pro Glu Gly Val Ile Glu Ser Asn Trp Asn Glu Ile Val Asp
 20 25 30
 Ser Phe Asp Asp Met Asn Leu Ser Glu Ser Leu Leu Arg Gly Ile Tyr
 35 40 45
 Ala Tyr Gly Phe Glu Lys Pro Ser Ala Ile Gln Gln Arg Ala Ile Leu
 50 55 60
 Pro Cys Ile Lys Gly Tyr Asp Val Ile Ala Gln Ala Gln Ser Gly Thr
 65 70 75 80
 Gly Lys Thr Ala Thr Phe Ala Ile Ser Ile Leu Gln Gln Ile Glu Leu
 85 90 95
 Asp Leu Lys Ala Thr Gln Ala Leu Val Leu Ala Pro Thr Arg Glu Leu
 100 105 110
 Ala Gln Gln Ile Gln Lys Val Val Met Ala Leu Gly Asp Tyr Met Gly
 115 120 125
 Ala Ser Cys His Ala Cys Ile Gly Gly Thr Asn Val Arg Ala Glu Val
 130 135 140
 Gln Lys Leu Gln Met Glu Ala Pro His Ile Ile Val Gly Thr Pro Gly
 145 150 155 160
 Arg Val Phe Asp Met Leu Asn Arg Arg Tyr Leu Ser Pro Lys Tyr Ile

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Lys | Met | Phe | Val | Leu | Asp | Glu | Ala | Asp | Glu | Met | Leu | Ser | Arg | Gly | Phe | |
| | | | 180 | | | | | | 185 | | | | | 190 | | |
| Lys | Asp | Gln | Ile | Tyr | Asp | Ile | Phe | Gln | Lys | Leu | Asn | Ser | Asn | Thr | Gln | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Val | Val | Leu | Leu | Ser | Ala | Thr | Met | Pro | Ser | Asp | Val | Leu | Glu | Val | Thr | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Lys | Lys | Phe | Met | Arg | Asp | Pro | Ile | Arg | Ile | Leu | Val | Lys | Lys | Glu | Glu | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Leu | Thr | Leu | Glu | Gly | Ile | Arg | Gln | Phe | Tyr | Ile | Asn | Val | Glu | Arg | Glu | |
| | | | 245 | | | | | | 250 | | | | | 255 | | |
| Glu | Trp | Lys | Leu | Asp | Thr | Leu | Cys | Asp | Leu | Tyr | Glu | Thr | Leu | Thr | Ile | |
| | | 260 | | | | | | 265 | | | | | 270 | | | |
| Thr | Gln | Ala | Val | Ile | Phe | Ile | Asn | Thr | Arg | Arg | Lys | Val | Asp | Trp | Leu | |
| | | 275 | | | | | 280 | | | | | | 285 | | | |
| Thr | Glu | Lys | Met | His | Ala | Arg | Asp | Phe | Thr | Val | Ser | Ala | Met | His | Gly | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Asp | Met | Asp | Gln | Lys | Glu | Arg | Asp | Val | Ile | Met | Arg | Glu | Phe | Arg | Ser | |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 | |
| Gly | Ser | Ser | Arg | Val | Leu | Ile | Thr | Thr | Asp | Leu | Leu | Ala | Arg | Gly | Ile | |
| | | | 325 | | | | | | 330 | | | | | 335 | | |
| Asp | Val | Gln | Gln | Val | Ser | Leu | Val | Ile | Asn | Tyr | Asp | Leu | Pro | Thr | Asn | |
| | | 340 | | | | | | 345 | | | | | 350 | | | |
| Arg | Glu | Asn | Tyr | Ile | His | Arg | Ile | Gly | Arg | Gly | Gly | Arg | Phe | Gly | Arg | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Lys | Gly | Val | Ala | Ile | Asn | Met | Val | Thr | Glu | Glu | Asp | Lys | Arg | Thr | Leu | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Arg | Asp | Ile | Glu | Thr | Phe | Tyr | Asn | Thr | Ser | Ile | Glu | Glu | Met | Pro | Leu | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Asn | Val | Ala | Asp | Leu | Ile | | | | | | | | | | | |
| | | | | 405 | | | | | | | | | | | | |

<210> 13
 <211> 500
 <212> PRT
 <213> molgula oculata

<400> 13

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Ser | Gly | Tyr | Ser | Ser | Asp | Arg | Asp | Arg | Gly | Arg | Asp | Arg | Gly | Phe | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Gly | Ala | Pro | Arg | Phe | Gly | Gly | Ser | Arg | Ala | Gly | Pro | Leu | Ser | Gly | Lys | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Lys | Phe | Gly | Asn | Pro | Gly | Glu | Lys | Leu | Val | Lys | Lys | Lys | Trp | Asn | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Asp | Glu | Leu | Pro | Lys | Phe | Glu | Lys | Asn | Phe | Tyr | Gln | Glu | His | Pro | Asp | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Leu | Ala | Arg | Arg | Thr | Ala | Gln | Glu | Val | Glu | Thr | Tyr | Arg | Arg | Ser | Lys | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Glu | Ile | Thr | Val | Arg | Gly | His | Asn | Cys | Pro | Lys | Pro | Val | Leu | Asn | Phe | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Tyr | Glu | Ala | Asn | Phe | Pro | Ala | Asn | Val | Met | Asp | Val | Ile | Ala | Arg | Gln | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Asn | Phe | Thr | Glu | Pro | Thr | Ala | Ile | Gln | Ala | Gln | Gly | Trp | Pro | Val | Ala | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Leu | Ser | Gly | Leu | Asp | Met | Val | Gly | Val | Ala | Gln | Thr | Gly | Ser | Gly | Lys | |
| | 130 | | | | | | 135 | | | | | 140 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Ser | Tyr | Leu | Leu | Pro | Ala | Ile | Val | His | Ile | Asn | His | Gln | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Leu | Glu | Arg | Gly | Asp | Gly | Pro | Ile | Cys | Leu | Val | Leu | Ala | Pro | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Arg | Glu | Leu | Ala | Gln | Gln | Val | Gln | Gln | Val | Ala | Ala | Glu | Tyr | Cys | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ala | Cys | Arg | Leu | Lys | Ser | Thr | Cys | Ile | Tyr | Gly | Gly | Ala | Pro | Lys | Gly |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Pro | Gln | Ile | Arg | Asp | Leu | Glu | Arg | Gly | Val | Glu | Ile | Cys | Ile | Ala | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Pro | Gly | Arg | Leu | Ile | Asp | Phe | Leu | Glu | Cys | Gly | Lys | Thr | Asn | Leu | Arg |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Arg | Thr | Thr | Tyr | Leu | Val | Leu | Asp | Glu | Ala | Asp | Arg | Met | Leu | Asp | Met |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Gly | Phe | Glu | Pro | Gln | Ile | Arg | Lys | Ile | Val | Asp | Gln | Ile | Arg | Pro | Asp |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Arg | Gln | Thr | Leu | Met | Trp | Ser | Ala | Thr | Trp | Pro | Lys | Glu | Val | Arg | Gln |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Ala | Glu | Asp | Phe | Leu | Lys | Asp | Tyr | Ile | His | Ile | Asn | Ile | Gly | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Leu | Glu | Leu | Ser | Ala | Asn | His | Asn | Ile | Leu | Gln | Ile | Val | Asp | Val | Cys |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| His | Asp | Val | Glu | Lys | Asp | Glu | Lys | Leu | Ile | Arg | Leu | Met | Glu | Glu | Ile |
| | | | 325 | | | | | 330 | | | | | 335 | | |
| Met | Ser | Glu | Lys | Glu | Asn | Lys | Thr | Ile | Val | Phe | Val | Glu | Thr | Lys | Arg |
| | | 340 | | | | | 345 | | | | | 350 | | | |
| Arg | Cys | Asp | Glu | Leu | Thr | Arg | Lys | Met | Arg | Arg | Asp | Gly | Trp | Pro | Ala |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Met | Gly | Ile | His | Gly | Asp | Lys | Ser | Gln | Gln | Glu | Arg | Asp | Trp | Val | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Asn | Glu | Phe | Lys | His | Gly | Lys | Ala | Pro | Ile | Leu | Ile | Ala | Thr | Asp | Val |
| 385 | | | | 390 | | | | | | 395 | | | | | 400 |
| Ala | Ser | Arg | Gly | Leu | Asp | Val | Glu | Asp | Val | Lys | Phe | Val | Ile | Asn | Tyr |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Asp | Tyr | Pro | Asn | Ser | Ser | Glu | Asp | Tyr | Ile | His | Arg | Ile | Gly | Arg | Thr |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ala | Arg | Ser | Thr | Lys | Thr | Gly | Thr | Ala | Tyr | Thr | Phe | Phe | Thr | Pro | Asn |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Asn | Ile | Lys | Gln | Val | Ser | Asp | Leu | Ile | Ser | Val | Leu | Arg | Glu | Ala | Asn |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Gln | Ala | Ile | Asn | Pro | Lys | Leu | Leu | Gln | Leu | Val | Glu | Asp | Arg | Gly | Ser |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Gly | Arg | Ser | Arg | Gly | Arg | Gly | Gly | Met | Lys | Asp | Asp | Arg | Arg | Asp | Arg |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Tyr | Ser | Ala | Gly | | | | | | | | | | | | |
| | | | 500 | | | | | | | | | | | | |

<210> 14

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> protein domain

<400> 14

Thr Gly Ser Gly Lys Thr
1 5

<210> 15
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> protein domain

<400> 15
Asp Glu Cys His
1

<210> 16
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> protein domain

<400> 16
Ala Arg Gly Arg Ala
1 5

<210> 17
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> protein domain

<221> VARIANT
<222> 8
<223> Xaa = Any Amino Acid

<221> VARIANT
<222> 9
<223> Xaa = Any Amino Acid

<400> 17
Tyr Ile His Arg Ile Gly Arg Xaa Xaa Arg
1 5 10

<210> 18
<211> 8
<212> PRT
<213> Artificial Sequence

<220>

<223> protein domain

<400> 18

Leu Pro Thr Gly Ser Gly Lys Thr
1 5

<210> 19

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> protein domain

<221> VARIANT

<222> 1

<223> Xaa = Ala or Gly

<221> VARIANT

<222> 2

<223> Xaa = any amino acid

<221> VARIANT

<222> 3

<223> Xaa = any amino acid

<221> VARIANT

<222> 5

<223> Xaa = any amino acid

<400> 19

Xaa Xaa Xaa Gly Xaa Gly Lys Thr
1 5

<210> 20

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> protein domain

<400> 20

Asp Glu Ala Asp
1

<210> 21

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> protein domain

<400> 21
Asp Glu Ala His
1

<210> 22
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> protein domain

<221> VARIANT
<222> 3
<223> Xaa = Any Amino Acid

<400> 22
Asp Glu Xaa His
1

<210> 23
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> protein domain

<221> VARIANT
<222> 6
<223> Xaa = Any Amino Acid

<221> VARIANT
<222> 7
<223> Xaa = Any Amino Acid

<400> 23
His Arg Ile Gly Arg Xaa Xaa Arg
1 5

<210> 24
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> protein domain

<400> 24
Ala Arg Gly Arg Ile
1 5

<210> 25

<211> 6406
<212> DNA
<213> homo sapiens

<400> 25

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| tccactcaat | ataaagcttg | cactcattct | ccaagcccag | gtgtgatccg | attcttccag | 60 |
| tataccaagt | caagaacctg | ggatacagaa | agccctctgt | ccttgagaca | atgtagaggg | 120 |
| tctaactgag | cttggttaaca | caagccacct | atagacagca | aaactaaaag | atcaccctgt | 180 |
| aacacacgcc | cactgaggct | tcagaagctg | taaacatcca | cccctagaca | ctgccgtggg | 240 |
| tcggagcccc | acagcctgcc | catctgcagg | ctcccttaga | ggtttgagca | gtggggcact | 300 |
| gaagaagcga | gccacacccc | catactgccc | aaggtaattt | acagattcaa | tgccatcccc | 360 |
| atcaagctac | caatgacttt | cttcacagaa | ttggaaaaaa | ctactttaaa | gttcatatgg | 420 |
| aaccaaaaaa | gagcccgcat | cgccaagtca | atcctaagcc | aaaagaacaa | agctggaggc | 480 |
| atcacccctac | ctgactttcaa | acaatactac | aaggctacag | taaccaaaac | agcatgggtac | 540 |
| tggtaccaaa | acagagatat | agatcaattg | aacagaacag | agccctcaga | aataatgcca | 600 |
| catatctaca | actatctgat | ctttgacaaa | cctgagaaaa | acaagcaatg | gggaaagtat | 660 |
| tccttattta | ataaatgggtg | ctgggaaaaac | tggctagcca | tatgtagaaa | gctgaaactg | 720 |
| ggttcctttc | ttacacctta | tacaaaaatc | aattcaagat | ggattaaaga | cttaaactgt | 780 |
| agacctaaaa | ccataaaaaac | cctagaagaa | aacctaggca | ttaccattca | ggacatacgc | 840 |
| atgggcaagg | acttcatgtc | taaaacacca | aaagcaatgg | caacaaaagc | caaaattgac | 900 |
| aaacgggtatc | taattaaact | aaagagcttc | tgcacagcaa | aagaaactac | cattagagtg | 960 |
| aacaggcaac | ctacaaaatg | ggagaaaatt | ttcgcaacct | actcatccga | caaagggcta | 1020 |
| atatccagaa | tctacaatga | actcaaacaa | atttacaaga | aaaaaacaaa | caaccccatc | 1080 |
| aaaaagtggg | tgaaggacat | gaacagacac | ttgtcaaaag | aagacattta | tgcagccaaa | 1140 |
| aaacacatga | aaaaatgctc | accatcactg | gccatcagag | aaatgcaaat | caaaaccaca | 1200 |
| atgagatacc | atctcacacc | agttagaatg | gcaatcatta | aaaagtcagg | aaacaacagg | 1260 |
| tgatggagag | gatgtggaga | aataggaaca | cttttgcact | gttgggtggga | ctgtaaacta | 1320 |
| gttcaaccat | tgtggaagtc | agtgtggtga | ttcctcaggg | atctagaact | agaaatacca | 1380 |
| tttgaccagg | ccatcccatt | actgggtata | tactcaaagg | actataaatc | ttgctgctat | 1440 |
| aaagacacat | gcacatgtat | gtttattgtg | gcattattca | caatagcaaa | gacttggaac | 1500 |
| caacccaaat | gtccaacagt | gatagactgg | attaagaaaa | tgtggcacac | atacaccatg | 1560 |
| gaataactatg | cagccataaa | aaatgatgag | ttcatgtcct | ttgtagggac | atggatgaaa | 1620 |
| ttggaaatca | tcattctcag | taaactatcg | acagaacaaa | aaaccaaaca | ccgcatattc | 1680 |
| tcactcatag | gtgggaattg | aacaatgcga | acacatggac | acaggaagga | gaacatcaca | 1740 |
| ctctggggac | tgttgtgggg | tggggggagg | ggggagggat | agcattggta | gatataccta | 1800 |
| atgctagatg | acgagttagt | gggtgcagcg | caccagcatg | acacatgtat | acatatgtaa | 1860 |
| ccaacctgca | cattgtgcac | atgtacccta | aaacttaaaag | tataataata | aataaataaa | 1920 |
| taaataaata | aataaataaa | gtaaaataaa | acaattacaa | tctagccttt | gaggtaaaaag | 1980 |
| tactgttttt | cacaaaaaca | tttgcaggta | actgtttttg | aaaagacttt | aagctatgga | 2040 |
| aggagtactt | gaaaaatgaa | tgttccaaaa | cttatctatt | gatacgtgac | tttcattttt | 2100 |
| tgccaaaact | gctatgtaga | aaagttttta | tatgtgaaaa | cttaaaaacc | agaattttta | 2160 |
| ttgaattggg | gaaagtgatt | aggaaattat | tatcaagatt | tagtgaactt | agccataatt | 2220 |
| ttttttctat | tttaggctta | ctactatttt | tgaaataaaa | agctacgaca | gtatcctttt | 2280 |
| aataaaacttt | cctgctaaat | cagcctatca | gtttcagtta | aatggctgaa | agtcttgctt | 2340 |
| aaagtctcag | ttaaatggct | agctattata | tagtgtttat | atgtatgtgt | gtatatatat | 2400 |
| atatatatat | atatatatat | atatatatat | atatatatat | atgtaactaa | atttttcctt | 2460 |
| tataaattgt | gcattctttg | aagactagca | ccgcaccatc | tcttctttta | tttttatata | 2520 |
| agcgtagtgg | gctggagtca | catattgggc | acataaacat | gccaggctgg | tgctagtgtg | 2580 |
| ttacagtcta | tccttagaac | aaacttctga | catgatacca | gaatctttcc | attttacaac | 2640 |
| tgatgtattt | gaggtgattt | ttcaaagcac | agcaattaaag | aaatagtatt | gagatgtgaa | 2700 |
| ctcagacagc | ctgaacttcag | agtctctgtg | cttaaccata | ccccacactg | ccaggttaag | 2760 |
| agcatctaac | actttaaatt | acacaaaagc | ggctcattat | tgatacaaat | gagcaaacaa | 2820 |
| gtaaaggaac | agaacaacaa | ttccagggtt | tctcactaaa | ctaaaattat | tgtcattttc | 2880 |
| tttgaaaaag | acattattgc | tatgcatggt | cgttaaattg | tagtggcagc | tcattattgt | 2940 |
| actacttctt | aaaaactcaa | atgaaaagtt | gcataacaat | gggaaaatac | atagttcagc | 3000 |
| aggatctcct | gcctcaaaag | agaaaggaaa | aagaaactta | catttgggaa | ctgggtgaaa | 3060 |
| ggattaaaaat | gaaacctagt | agaagaaact | tgacagagga | aaacaattaa | ttactcaagt | 3120 |

| | | | | | | |
|------------|-------------|-------------|-------------|-------------|-------------|------|
| gaaaaacaga | aaataaacta | aatcatgatg | caaaaaatat | agatgaaaaa | aggatacatt | 3180 |
| gtgagagatt | gtgtcttggc | ttttgtttcc | ttaacctcct | ttctccaaaa | aggggtcccat | 3240 |
| caagactatg | ggagattcct | aaaaaagaag | tcccttccac | ccacacctaa | tcctcatcac | 3300 |
| tcagacctca | tccagcagag | agactcctac | ttgtgagaaa | atatgaattg | ttattgttgg | 3360 |
| gtattatgtg | atgctaatag | ggtttagagga | ggatgactat | ttgggaaatc | aacctgtgaa | 3420 |
| actgtaatat | acattattat | gtagattttac | tatgggtcttc | agggcattta | tcctcacctg | 3480 |
| cacattgcat | atTTTTtagt | cattactttac | catctatctt | cccactccca | ttagaatgtg | 3540 |
| aactccataa | aagtaggagc | tttgTTaatt | ttattaactg | cacctagatc | agtgtctggc | 3600 |
| atgtaataga | tacttaataa | acataTTTTa | aatgactaga | tgatacaatg | aatgatataa | 3660 |
| tttgaatgcc | aaatatttaa | atatctttgg | tttaaagtgt | tattatttga | gaacagggtca | 3720 |
| aataccaaac | atTTgatcct | ttctcttcca | gagcaacaat | taagtggat | gaagaaaata | 3780 |
| acattaactg | gttccccata | ttcagtcagc | aacctcttct | cattccccca | tgtttgaaac | 3840 |
| caagaaacag | aaggataagt | gccaggaaaa | agaatgtttt | ttggtttgtt | agtttgtgct | 3900 |
| ttacatgtt | gaataaaaacc | cactggcagc | tgggggatag | gagtatgttt | ttgcaacagc | 3960 |
| cttaaaagat | atTTtcatag | acccaatact | taaaattaat | aatttgagtg | cttttgtaga | 4020 |
| aacatcta | tggtattatcc | tctatctggg | tacaagggtca | tctcccaaaa | ttaaagtgaaa | 4080 |
| aaggagtagg | gttctgtgaa | gaaacagaaa | agaacagtat | aaatcaggcc | tacctgcaag | 4140 |
| cccaagggtt | catttacttc | aactttcagt | gtattttaaca | ttatgccagc | tgctatgggtc | 4200 |
| aactcaaata | caactcccag | gagagatgtc | atcaagagcc | caccagttgt | gagtagtgta | 4260 |
| ctagttacta | tgtaaatata | tcccttcttc | aagcagctta | caatcettca | ggggtagaaa | 4320 |
| aagccttgct | acataagata | attagagaat | aaaataagac | atgttaccat | aaagtgtctca | 4380 |
| tttgatatt | ttgtatgccc | ctagtaaaca | ctcaccaaga | ctctgtactt | ctattatcct | 4440 |
| gttcaaagca | ctatcagggt | ttcctggcct | acacagactt | tattgaatgt | actttgctaa | 4500 |
| cagattat | ttcctaaata | tgtctctttg | ataacctaaa | tgatctctcc | atcctttata | 4560 |
| taattctgga | ccatgagatt | ctagttatgg | tgcgtatgtg | cctaccaccc | acagtcacat | 4620 |
| gtggctacag | aatgccttca | gaatgagtag | taaccttaag | gactcacatt | tatgtggctt | 4680 |
| ctgtacaaa | atgaagctgc | catttttctag | tgtgaatatg | ttttttttct | ctcatgacat | 4740 |
| agacaaatgt | tgatgtttac | tacaagttgg | tacattagtt | gctaattaag | ttcctagctg | 4800 |
| ctccagccaa | aacttgctgt | attgaatcca | agaaaagaat | ggcagctata | tcaaaaataa | 4860 |
| gttggtgggg | gatttttttg | ttttgtttta | ttaaaggaaa | gttgatatatt | aaagaatata | 4920 |
| gggaacttac | aagctggggg | ctaggaaaact | ttaagtcttg | gcttcttctt | aagctgagtt | 4980 |
| ggtggttcaa | gtccatccac | atctgttacc | aggtcctggg | caaagctgca | taaataccag | 5040 |
| caatctaaat | atgaggcagt | aaagttaaact | gtttattgtt | actcactttt | tcgaaccac | 5100 |
| ctccaaattc | ccagggaac | aagttagttg | ttgggaaccc | acaggagggtc | aggtttattt | 5160 |
| taggaaggac | ttctcctgt | cttctccaca | tctctgcaaa | gatgtcttct | gagcttcac | 5220 |
| tctcactgt | ccctgcagc | ctcaccaccc | tcagccaggc | ctgcctacat | tcaccagccg | 5280 |
| agggtaaact | cctgttccag | tccgggtctg | tggcagtttc | tgttcacttc | cccttgggaa | 5340 |
| agtcccaaat | cacatgcttt | tatgccctgc | acattttggc | ctacaaagga | ccttattgtt | 5400 |
| aaggcagaac | ctgctgggaa | aacaaaatat | ccgccggagg | agctttgcta | gagcgttggt | 5460 |
| cttggtgtca | gagagaattc | gctttccttt | tctgtttccc | gcggtgtcct | taaccaaaagg | 5520 |
| cctcctctct | tcaccgcgcc | cgacccaaa | gtggcgtctc | cctgaggaaa | ctccctcccc | 5580 |
| gccaggcaga | ttacgtttac | aaagtcctga | gaagagaatc | gaaacagaaa | ccaagtcag | 5640 |
| gcaaactctg | taagaactgc | ctgacagaaa | gctggactca | aagctcctac | ccgagtgtgc | 5700 |
| agcaggatcg | ccccgggtccg | ggaccccagg | cgcacaccgc | agagtccaaa | gtgccgcgcc | 5760 |
| tgccggccgc | acctgcctgc | cgcggccccc | cgcgcgcgcc | cgctgcccac | ctgcccgcct | 5820 |
| gcccacctgc | ccaggtgcga | gtgcagcccc | gcgcgcgggc | ctgagagccc | tgtggacaac | 5880 |
| ctcgtcattg | tcaggcacag | agcggtagac | cctgcttctc | taagtgggca | gcggacagcg | 5940 |
| gcacgcacat | ttcacctgtc | ccgcagacaa | cagcaccatc | tgcttgggag | aacctctctc | 6000 |
| cttctctgag | aaagaaagat | gtcgaatggg | tattccacag | acgagaattt | ccgctatctc | 6060 |
| atctcgtgct | tcagggccag | ggtgaaaatg | tacatccagg | tggagcctgt | gctggactac | 6120 |
| ctgacctttc | tgctgcaga | ggtgaaggag | cagattcaga | ggacagtcgc | cacctccggg | 6180 |
| aacatgcagg | cagttgaact | gctgctgagc | accttgagga | agggagtctg | gcaccttggt | 6240 |
| tggactcggg | aattcgtgga | ggccctccgg | agaaccggca | gcccctctggc | cgcccgcctac | 6300 |
| atgaacctg | agctcacgga | cttgccctct | ccatcgtttg | agaacgctca | tgatgaatat | 6360 |
| ctccaactgc | tgaacctcct | tcagcccact | ctggtggaca | agcttc | | 6406 |

Ca
conew